

### **3. Heart Disease mortality in Appalachia**

Despite significant declines in heart disease mortality over the past thirty-years, heart disease continues to be the leading cause of death overall in the U.S. and Appalachia. However, there is considerable variability in the degree to which heart disease contributes to the overall burden of death among counties and race/gender/age groups.

Both in the Appalachian region and the non-Appalachian U.S., death rates from heart disease rank first among death rates used in this analysis for white and black men of both age groups. (Figure. 6 – Section I) For white and black women ages 35 to 64 heart disease death rates rank second. Among the elderly white and black women, death rates from heart disease rank first.

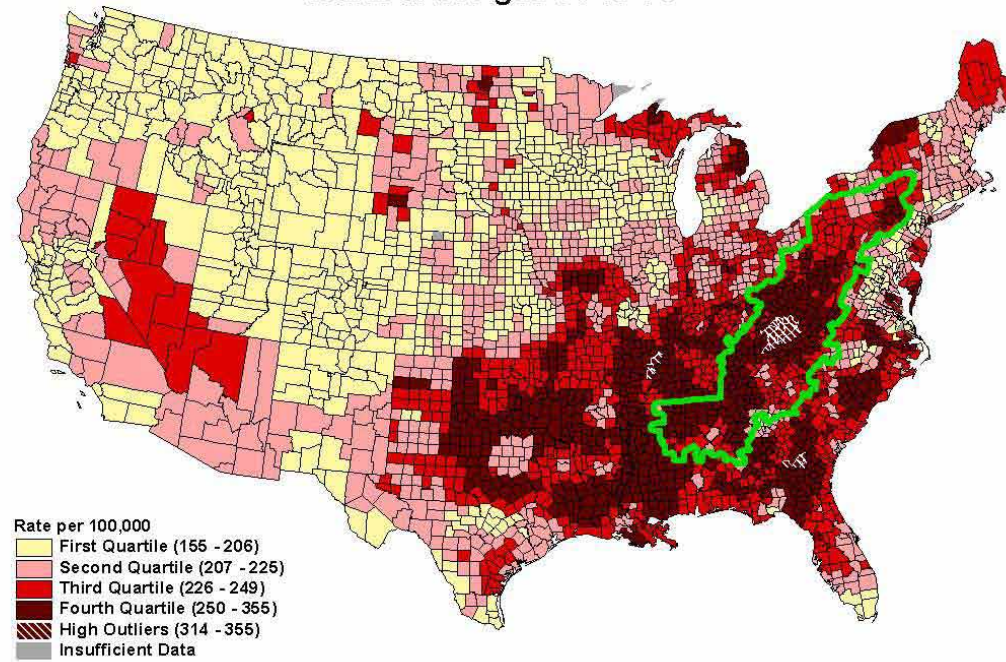
#### **County –Level Rates of Heart disease Mortality in Appalachia**

National maps for white men are shown on page 32 to highlight the general geographic trend in mortality across the country. These maps depict a strong geographic gradient which exist between western and eastern U.S. counties with generally higher rates in the eastern portion of the U.S. Another important feature of these maps is the presence of high outlier counties (unusually high death rates) in the Appalachian region. These maps reveal the largest clusters of high outlier counties exist in the Central Appalachian region for white men ages 35 to 64 although larger clusters for elderly white men exist outside of the Appalachian region. Similar clusters exist for white women ages 35 to 64. The complete set of national maps is presented in Appendix A.

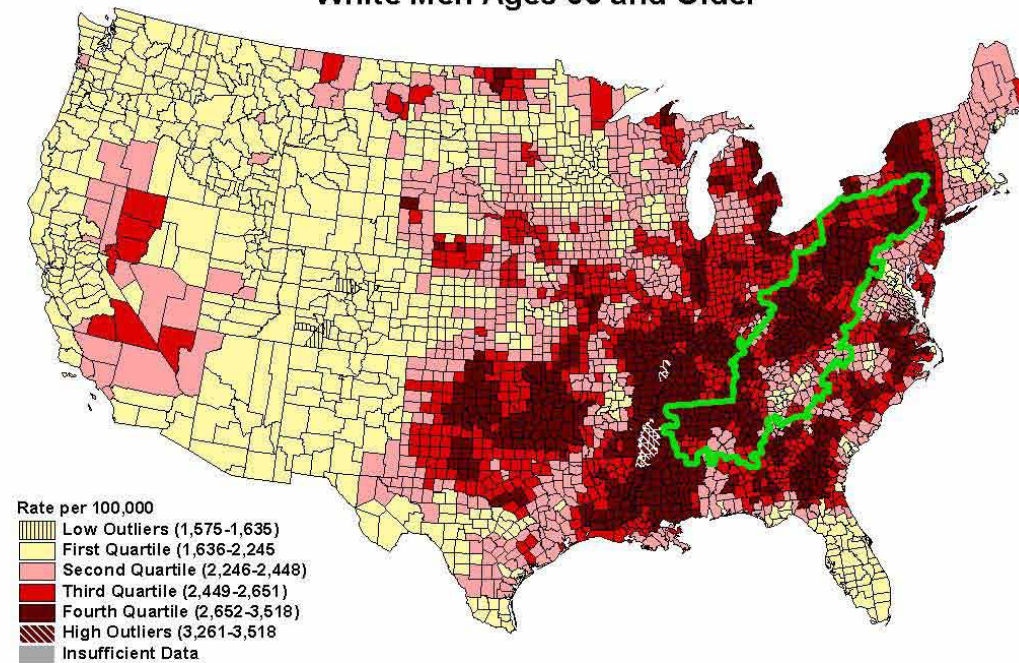
County level rates of mortality from heart disease are shown on pages 33-36. County-level heart disease death rates range from 155 to 355 death per 100,000 among white men ages 35 to 64, from 2,065 to 3,194 deaths per 100,000 among elderly white men, from 190 to 538 deaths per 100,000 among black men ages 35 to 64, from 1,725 to 3,928 deaths per 100,000 among elderly black men, 46 to 144 deaths per 100,000 among white women ages 35 to 64, from 1,408 to 2,311 deaths per 100,000 among elderly white women, from 122 to 272 deaths per 100,000 among black women ages 35 to 64, and from 1,306 to 2,740 deaths per 100,000 among elderly black women. The disparity among county level death rates from heart disease is greatest among black men followed by white men, then black women, and white women. (Table 2. Section I).

Fairly consistent geographic patterns are evident in the distribution of heart disease death rates among the geographic subgroups. In general, high death rates from heart disease are predominant in the central and southern portions of the Appalachian region among all demographic subgroups. Among white men of both age groups, high heart disease death rates appear to cluster primarily in Eastern Kentucky, Southern West Virginia, and Southeastern Ohio with a large group of high outlier counties in Eastern Kentucky among white men ages 35 to 64. High rate areas are also evident among counties in the southern portion of the region along the Alabama-Georgia and Alabama-Mississippi borders, as well as a group of high rate counties in Northeastern Pennsylvania. Among white women of both age groups, the patterns are almost identical to those of white men. Geographic patterns of heart disease death rates for black populations are very consistent with those for white populations, although high-outlier counties are more predominant in the southern counties.

### White Men Ages 35 to 64



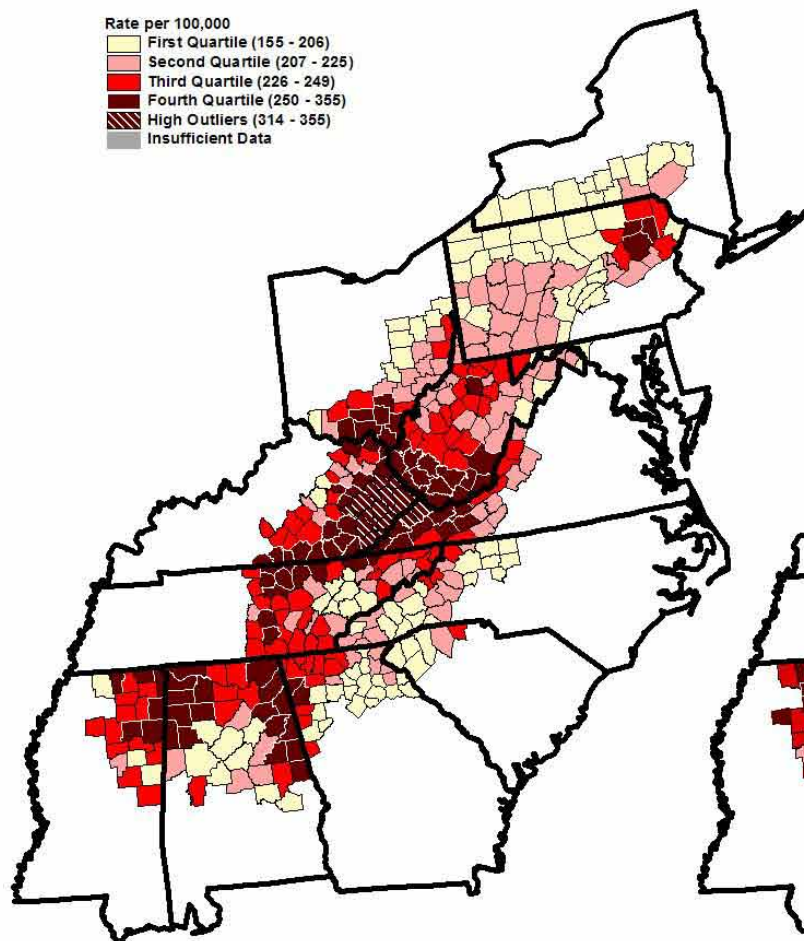
### White Men Ages 65 and Older



Smoothed Heart Disease Death Rate, 1990-1997

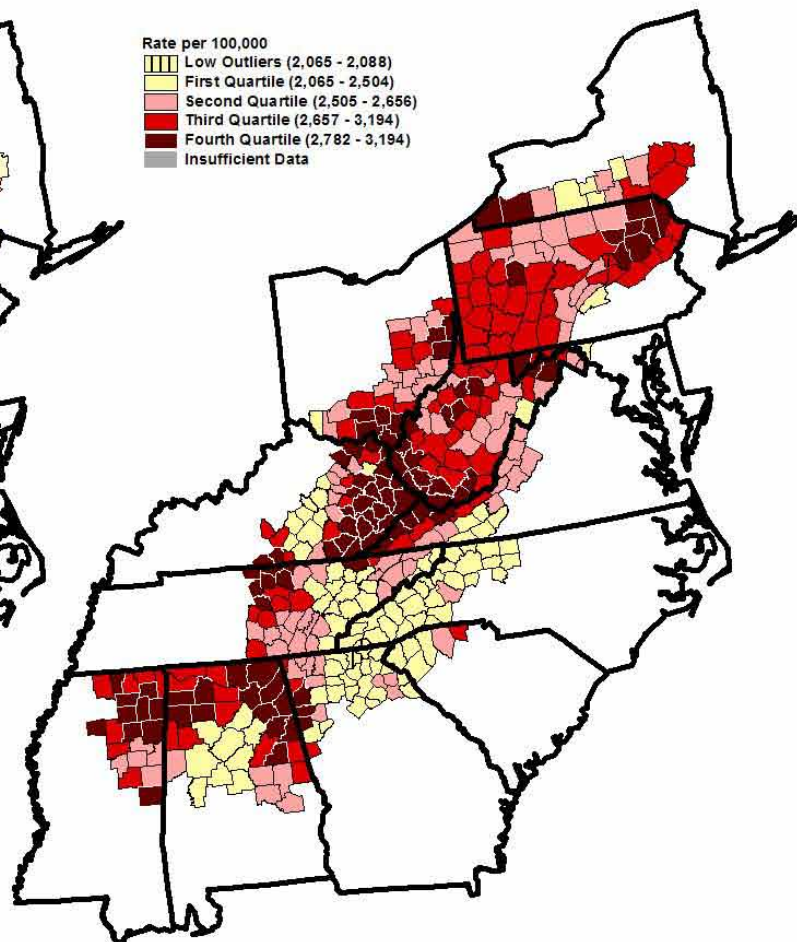
White Men Ages 35 to 64

Rate per 100,000  
First Quartile (155 - 206)  
Second Quartile (207 - 225)  
Third Quartile (226 - 249)  
Fourth Quartile (250 - 355)  
High Outliers (314 - 355)  
Insufficient Data



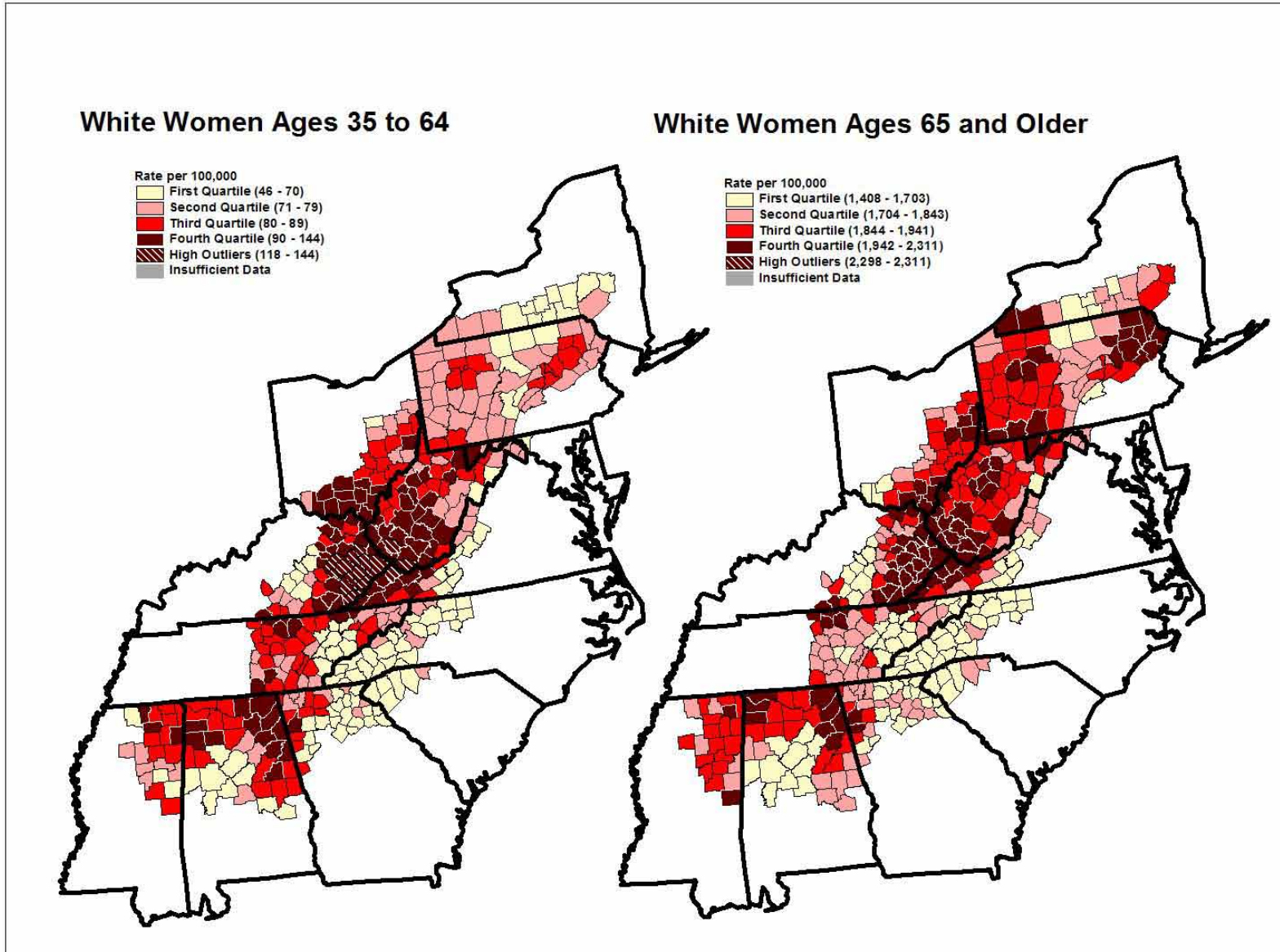
White Men Ages 65 and Older

Rate per 100,000  
Low Outliers (2,065 - 2,088)  
First Quartile (2,065 - 2,504)  
Second Quartile (2,505 - 2,656)  
Third Quartile (2,657 - 3,194)  
Fourth Quartile (2,782 - 3,194)  
Insufficient Data



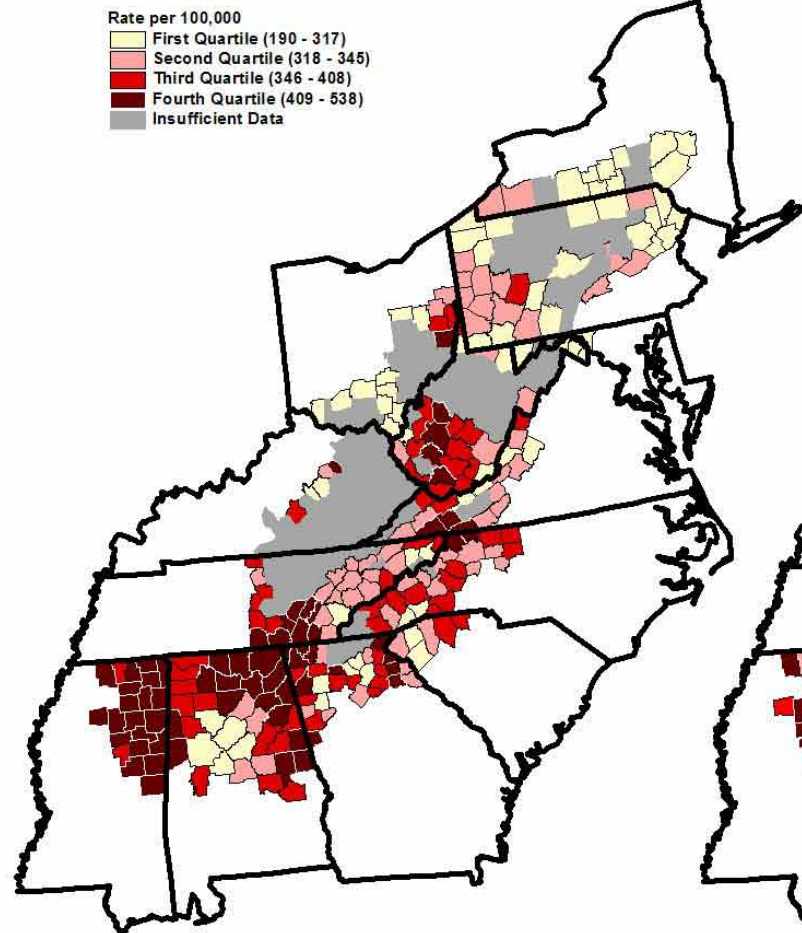


Smoothed Heart Disease Death Rate, 1990-1997

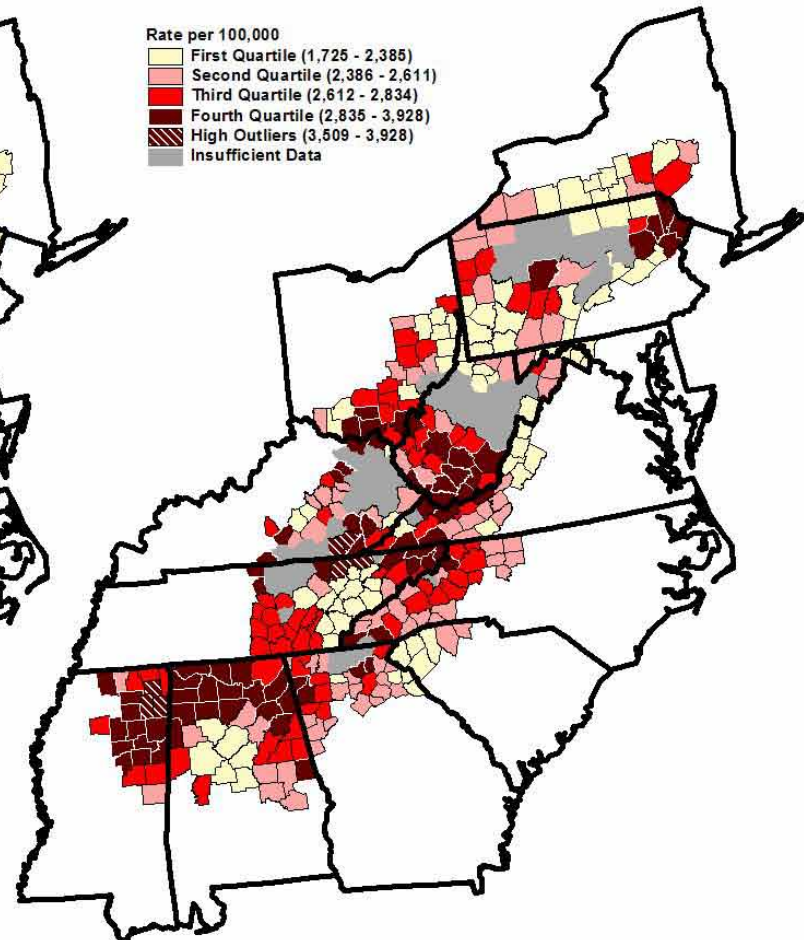


Smoothed Heart Disease Death Rate, 1990-1997

Black Men Ages 35 to 64

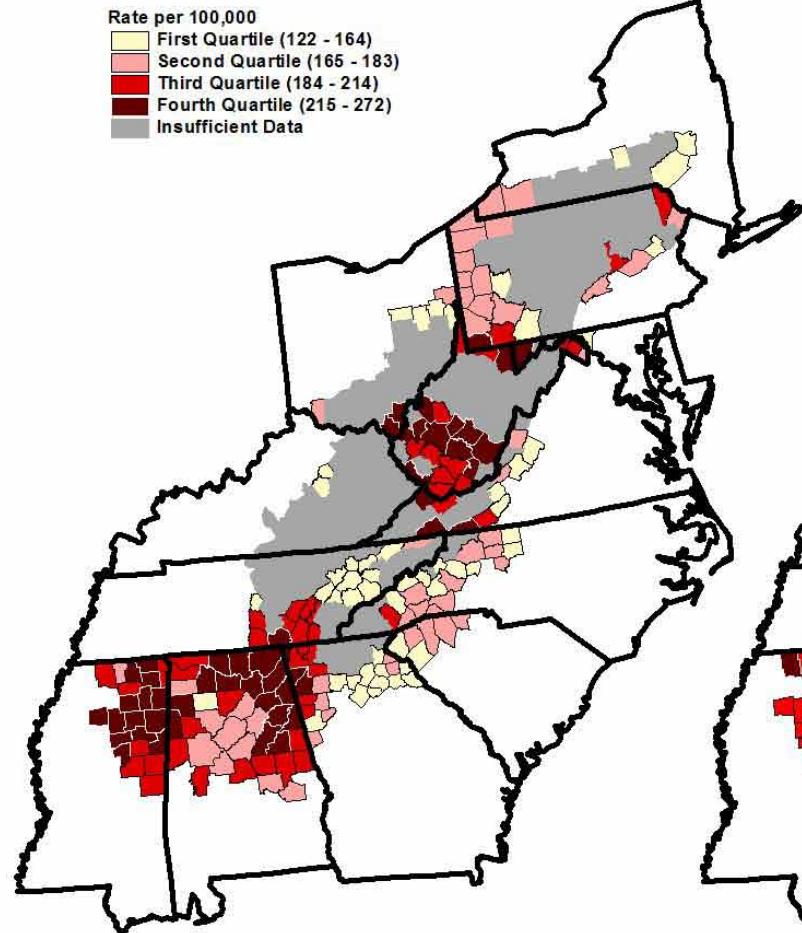


Black Men Ages 65 and Older

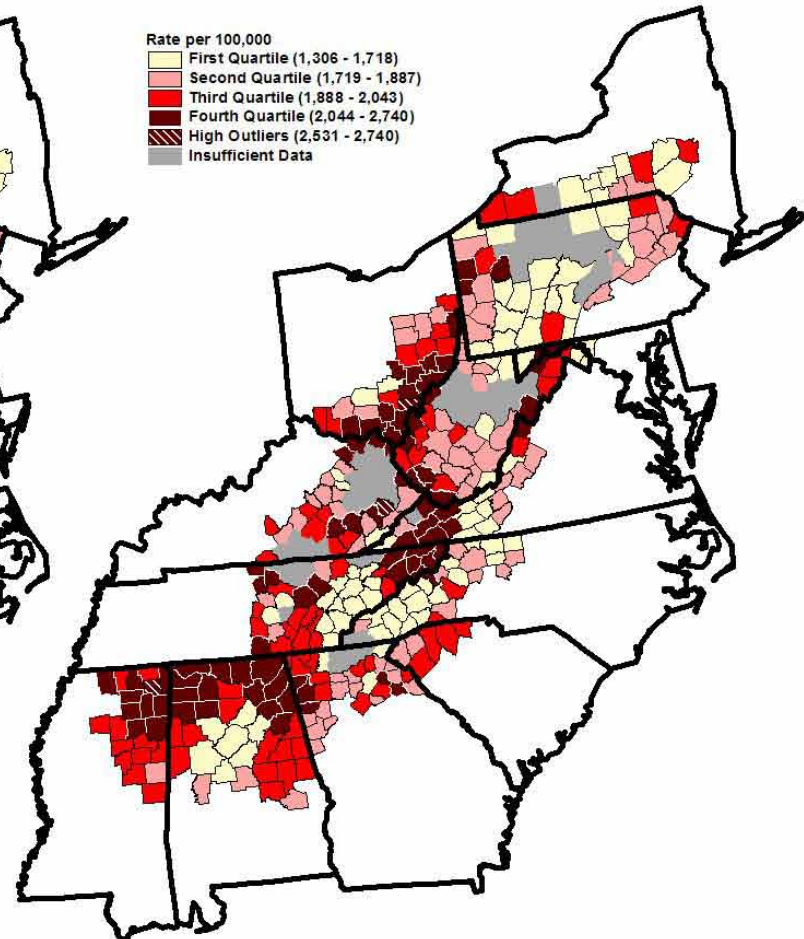


Smoothed Heart Disease Death Rate, 1990-1997

Black Women Ages 35 to 64



Black Women Ages 65 and Older



#### **4. County-Level Trends in Heart disease Mortality**

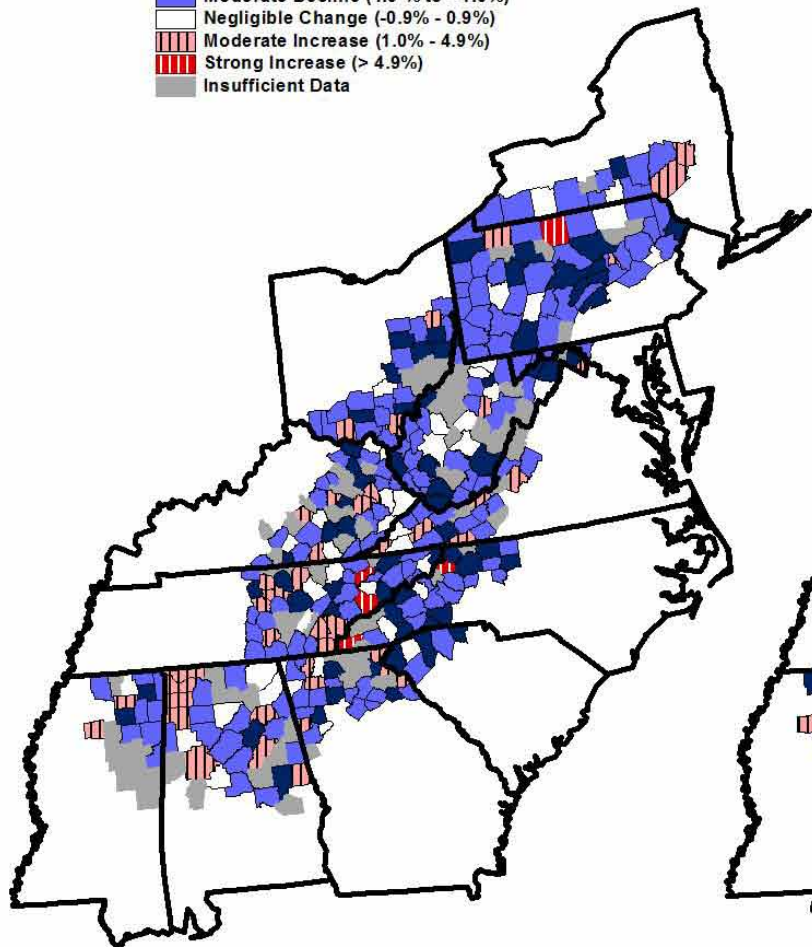
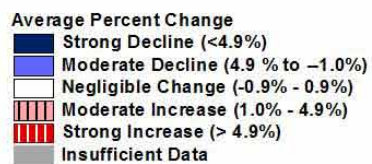
Maps depicting trends for heart disease death rates over the period 1985-1997 are presented on pages 38-41. Overall, death rates from heart disease have declined since the early 1960's. However considerable variation in the rate of decline has been documented along geographic and demographic dimensions. The county-level trends presented in the following maps, while suggesting primarily positive trends, indicate significant variability in the mortality trends among counties in the Appalachian region. For many counties there were insufficient data to calculate county-level heart disease mortality trends for black population subgroups. (refer to Section I B. County level Mortality Analyses and the Technical Appendix B for details on the estimation of mortality trends.)

The dominant trends for all population subgroups suggest moderate to strong declines in heart disease mortality over the study period. However significant numbers of counties have experienced moderate increase and a few have experienced strong increase. There does not appear to be a clustering of counties which have experienced increases, but rather they are generally scattered throughout the region.

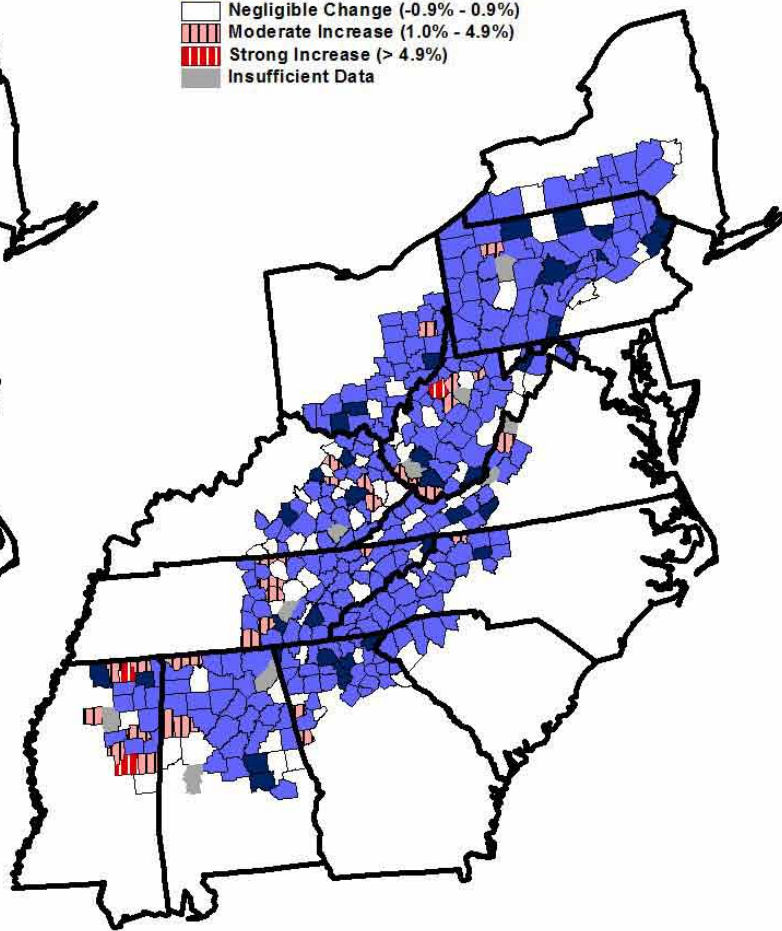


Trends in Heart Disease Mortality, 1985-1997

White Men Ages 35 to 64



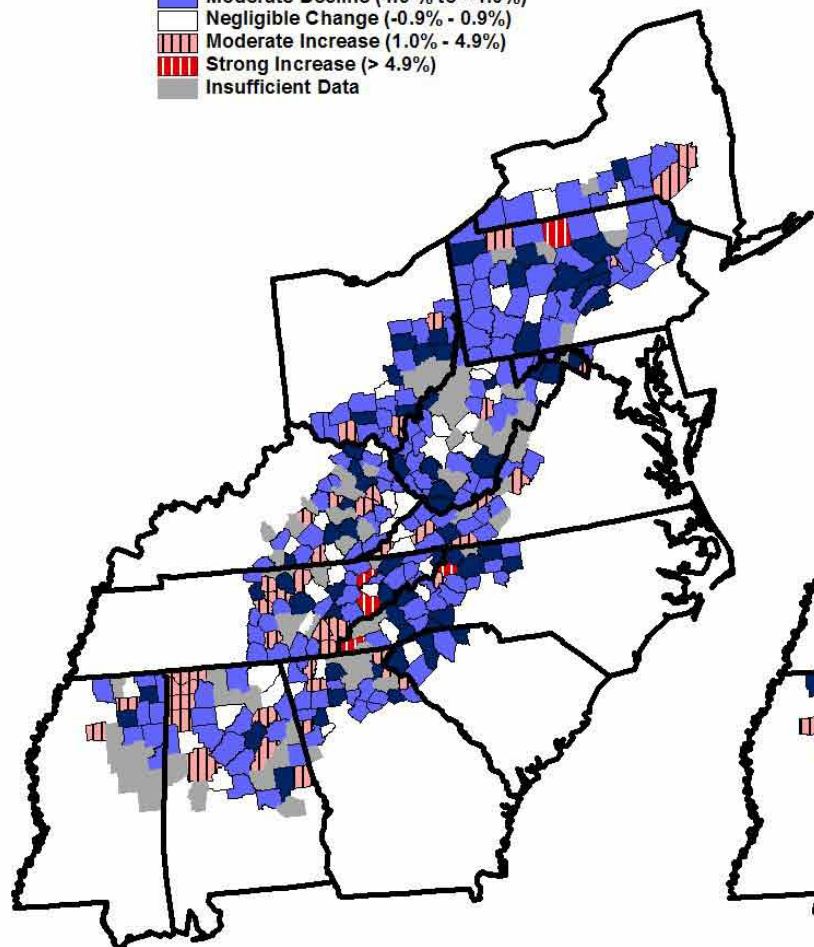
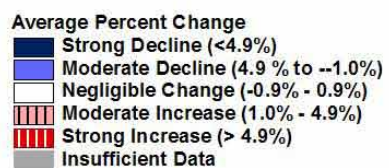
White Men Ages 65 and Older



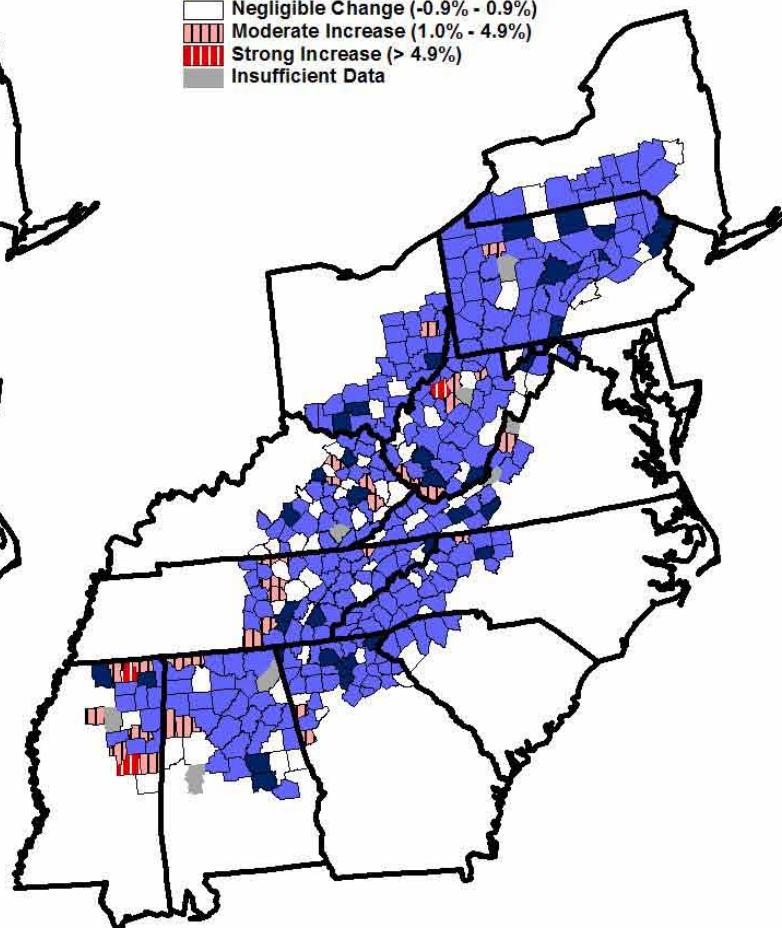
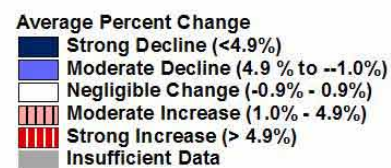


Trends in Heart Disease Mortality, 1985-1997

White Women Ages 35 to 64

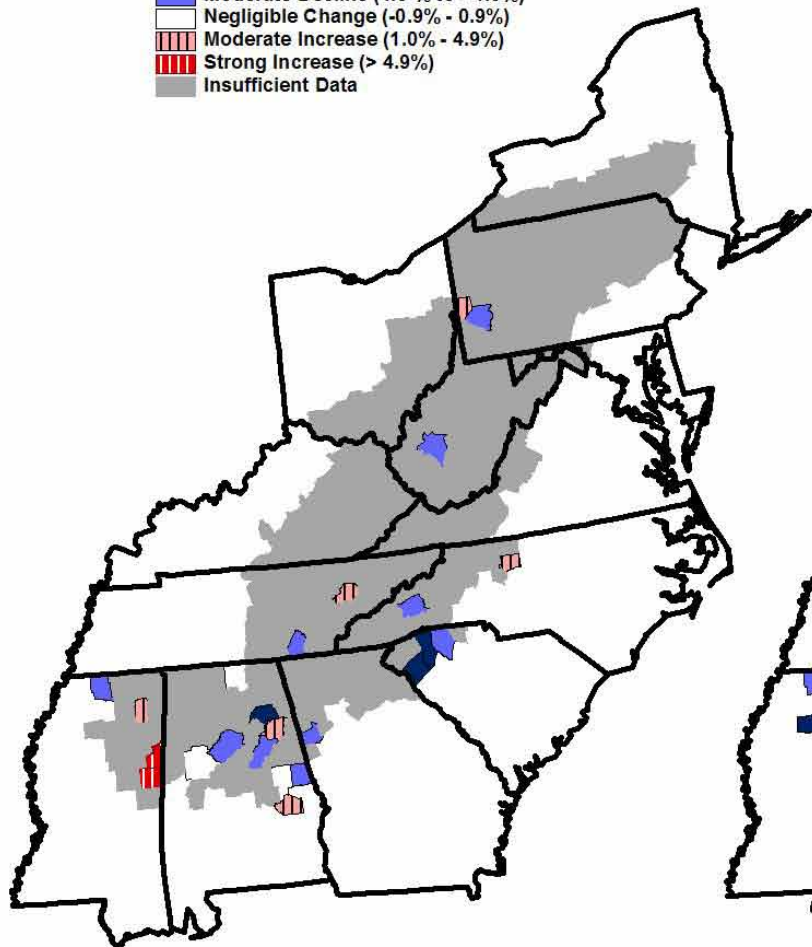
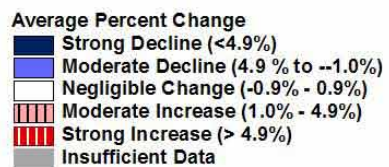


White Women Ages 65 and Older

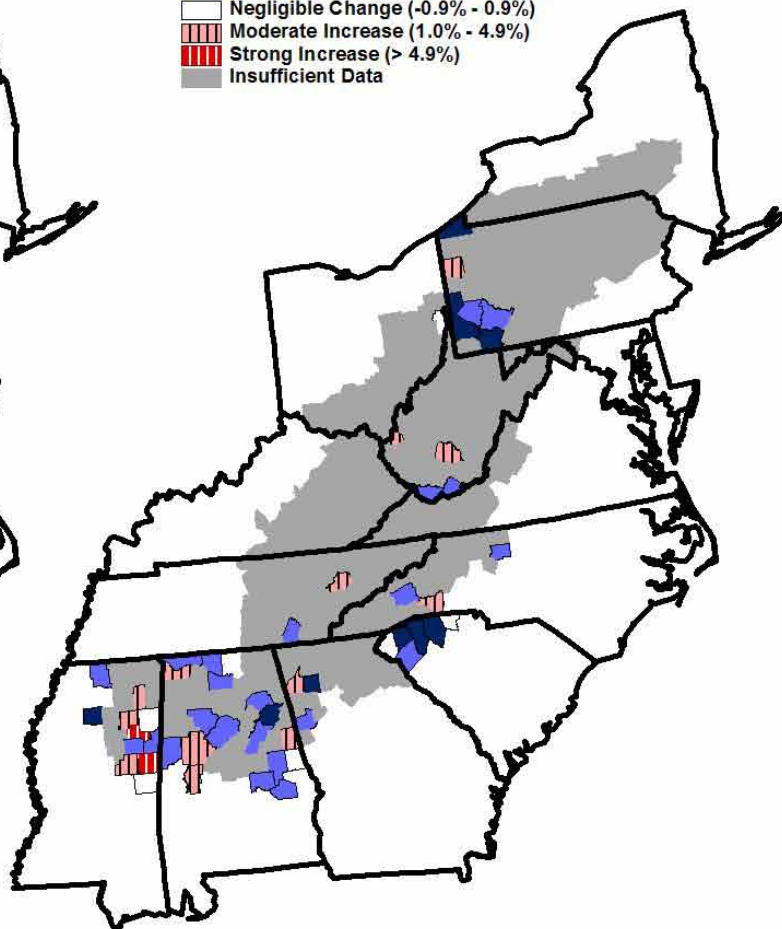
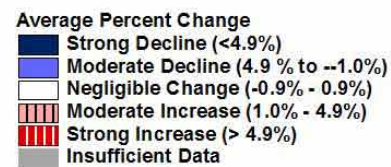


Trends in Heart Disease Mortality, 1985-1997

Black Men Ages 35 to 64

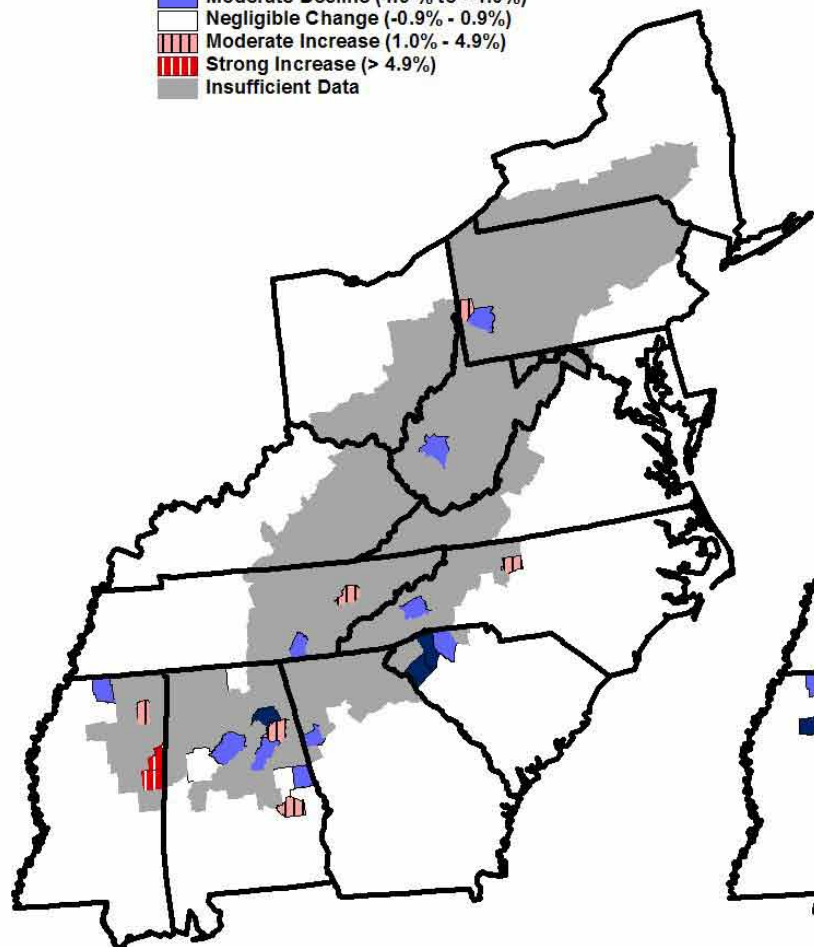
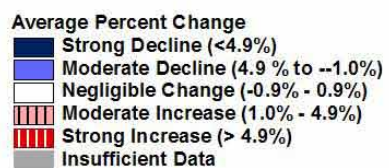


Black Men Ages 65 and Older



Trends in Heart Disease Mortality, 1985-1997

Black Women Ages 35 to 64



Black Women Ages 65 and Older

